NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Activity 3.3

We want to conduct a **matched-pairs** experiment in which we test the effect of step height on heart rate. We have 28 student volunteers for the experiment. We want to see whether a step height of 6” or 12” has a greater effect on the students’ heart rate. We will measure the students’ heart rate before and after each step height and compare the differences.

1. Design the experiment below:
2. We now need to select our subjects. Describe how we would do this (give instructions)
3. Treatment 1 = 6” first, then 12” 🡨 Circle which treatment you were assigned to

Treatment 2 = 12” first, then 6”

1. Take your pulse for 60 seconds. Record it here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. We will now begin our experiment. When it’s your turn, you will step up and down on the given step ***(at the pace given by the teacher)*** for 3 minutes.
3. Record your information below:

TRT. # Resting 6” After 6” **6” DIFF.** Resting 12” After 12” **12” DIFF DIFF (12” – 6”)**

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1. Did your pulse rate increase more when you used the higher step?
2. Add your data to the class chart on the board.
3. Create a dotplot of the **DIFFERENCES BETWEEN THE 12” and 6” step (last column of the chart)**
4. Briefly describe the plot above (min, max, center, shape, gaps, peaks, etc.)
5. Since we expect the 12” step to create a higher heart rate than the 6” step, what types of values do we expect for the differences? (positive or negative)
6. Calculate the class average for the DIFFERENCE BETWEEN THE 12” and 6” steps: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. *Using the info in the previous 2 questions,* is their evidence that heart rate increases more with greater step height?? ***EXPLAIN*** *(use the plot too!)*